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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Weinstein et al. Examiner: Rodriguez, Glenda P.
 Serial No.: 10/028,003 Group Art Unit: 2697
 Filed: December 20, 2001 Docket: STL10375/40046.181USU1
 Confirmation No.: 2375 Notice of Allow. Date:
 Due Date: December 30, 2003
 Title: ANTICIPATING MEDIA DECAY IN A DISC DRIVE

CERTIFICATE UNDER 37 CFR 1.10:

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By: *Jenifer Weck*
 Name: Jenifer Weck

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S/N 10/028,003



PATENT

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By:

Jeffrey Weck

RESPONSE

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Technology Center 2600

Commissioner for Patents
P.O. Box 1450
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Dear Sir:

This response is directed to the Office Action dated September 30, 2003, in the above-identified application. No claims have been amended, cancelled, or added. Therefore, claims 1-30 remain present for examination. Claims 10-14, 23-25, and 30 have been indicated as containing allowable subject matter. The Applicant thanks the Examiner for performing a careful search and finding allowable subject matter. However, the Examiner has failed to establish a *prima facie* case of obviousness in rejecting claims 1-9, 15-22, and 26-29. Therefore, the Applicant respectfully requests reconsideration and withdrawal of the rejection.

In order to establish a *prima facie* case of obviousness, the Examiner must establish: 1) some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or combine their teachings; 2) a reasonable expectation of success of such a modification or combination; and 3) a teaching or suggestion in the cited prior art of each claimed limitation. See MPEP §706.02(j).

As will be discussed in detail below, the references cited by the Examiner fail to teach or suggest each claimed limitation. The Examiner does not provide evidence that the suggestion or motivation to modify or combine the references cited is explicit or implicit in the references

cited. Further, the Examiner does not provide any evidence that knowledge of one skilled in the art would provide the suggestion or motivation to modify these references. Finally, the Examiner does not provide evidence of a reasonable expectation of success of such a modification or combination.

Claim Rejections - 35 USC § 103 Claims 1 and 15

Claims 1 and 15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Madsen et al. (USPN 5,600,500) in view of Korenari et al. (USPN 6,157,507). The Applicant respectfully submits the following arguments pointing out significant differences between claims 1 and 15 submitted by the Applicant and Madsen and Korenari.

Claims 1 and 15 are directed to estimating bit error rate for a disc media at a predetermined time occurring within a predetermined time period. Claims 1 and 15 recite in part “reading the data recorded on the disc media at specified interval points during the predetermined time period; computing a bit error rate value for the disc media at each specified interval point; extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over the predetermined time period, wherein the decay graph links the predetermined time to an estimated bit error rate for the disc media.” None of the references cited, alone or in combination, teach or suggest: 1) reading data recorded on the disc media at specified interval points; 2) computing a bit error rate value at each specified interval point; and 3) extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over a predetermined time period.

Madsen is directed to “a method of optimizing write current in a data storage system.” (Col. 3, lines 41-42) Under Madsen, a write current level is selected through an iterative process of writing to and reading from the storage medium at various write current levels while logging the error rate at each level. Selection of the write current level is based on the measured error rates. (Col. 3, line 56 - col. 4, line 28) A curve fitting operation such as described in Columns 9 and 10 with reference to Figs 6 and 7 can be applied to the measured error rates. However, Madsen does NOT teach or suggest reading data recorded on the disc media at specified interval points, computing a bit error rate value at each specified interval point, and extrapolating the bit

error rate values to create a decay graph representative of bit error rate changes for the disc media over a predetermined time period.

Korenari is directed to a performance evaluation method of an MR head whereby resolution performance of an MR head can be estimated exactly and a magnetic disk device which can automatically detect resolution performance degradation of its MR head. (Col. 2, lines 38-42) Korenari describes determining an order value and a half peak width based on the waveform obtained when reading a recorded bit of data. The order value and half peak width are used to determine whether the MR head resolution is sufficient for an expected minimum bit interval. (Col. 2, line 44 - col. 3, line 8) However, Korenari does NOT teach or suggest reading data recorded on the disc media at specified interval points, computing a bit error rate value at each specified interval point, and extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over a predetermined time period.

Neither Madsen nor Korenari, alone or in combination, teach or suggest reading data recorded on the disc media at specified interval points, computing a bit error rate value at each specified interval point, and extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over a predetermined time period. Therefore, the references cited by the Examiner fail to teach or suggest each claimed limitation. Additionally, neither reference suggests such a modification. The Examiner does not provide evidence that the suggestion or motivation to modify or combine the references cited is explicit or implicit in the references cited. Further, the Examiner does not provide any evidence that knowledge of one skilled in the art would provide the suggestion or motivation to modify or combine these references. Finally, the Examiner does not provide evidence of a reasonable expectation of success of such a modification or combination. Therefore claims 1 and 15 should be allowed.

Claim Rejections - 35 USC § 103 Claims 2, 3, 16, and 17

Claims 2, 3, 16, and 17 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Madsen et al. and Korenari et al. as applied to claims 1 and 15, and further in view of Takeuchi (USPN 6,191,905). The Applicant respectfully submits the following arguments

pointing out significant differences between claims 2, 3, 16 and 17 submitted by the Applicant and Madsen, Korenari, and Takeuchi.

As discussed above, independent claim 1 upon which claims 2 and 3 depend and independent claim 15 upon which claims 16 and 17 depend are distinguishable from Madsen and Korenari since neither Madsen nor Korenari, alone or in combination, teach or suggest reading data recorded on the disc media at specified interval points, computing a bit error rate value at each specified interval point, and extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over a predetermined time period.

Takeuchi is directed to “a magnetic disc apparatus capable of performing a window shift margin measurement.” (Col. 1, lines 53-54) Takeuchi describes shifting the window for reading data from an initial position to a maximum position. The width of the window is increased as the window is shifted. Check data is read repeated while the window is being shifted and an error rate is determined for various window positions. A window position is then selected based on the error rate data. (Col. 1, line 66 - col. 2, line 9)

However, Takeuchi, alone or in combination with Madsen and Korenari, does NOT teach or suggest reading data recorded on the disc media at specified interval points, computing a bit error rate value at each specified interval point, and extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over a predetermined time period. Therefore, the references cited by the Examiner fail to teach or suggest each claimed limitation. The Examiner does not provide evidence that the suggestion or motivation to modify or combine the references cited is explicit or implicit in the references cited. Further, the Examiner does not provide any evidence that knowledge of one skilled in the art would provide the suggestion or motivation to modify or combine these references. Finally, the Examiner does not provide evidence of a reasonable expectation of success of such a modification or combination. Therefore claims 2, 3, 16 and 17 should be allowed.

Claim Rejections - 35 USC § 103 Claims 4-9 and 18-22

Claims 4-9 and 18-22 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Madsen et al., and Korenari et al. as applied to claims 1 and 15, and further in view of Dovek et al. (USPN 5,625,506). The Applicant respectfully submits the following arguments

pointing out significant differences between claims 4-9 and 18-22 submitted by the Applicant and Madsen, Korenari, and Dovek.

As discussed above, independent claim 1 upon which claims 4-9 depend and independent claim 15 upon which claims 18-22 depend are distinguishable from Madsen and Korenari since neither Madsen nor Korenari, alone or in combination, teach or suggest reading data recorded on the disc media at specified interval points, computing a bit error rate value at each specified interval point, and extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over a predetermined time period.

Dovek is directed to “a method and apparatus for detecting transducer head and disk contacts in a direct access storage device (DASD) and more particularly to a method and apparatus for maintaining file readback performance compensating for readback errors caused by head/disk interaction.” (Col. 1, lines 11-16) Dovek describes iteratively reading data from the storage medium and adjusting a gain of a phase lock loop until the lowest error rate is detected. (Col. 2, lines 3-11) However, Dovek, alone or in combination with Madsen and Korenari, does NOT teach or suggest reading data recorded on the disc media at specified interval points, computing a bit error rate value at each specified interval point, and extrapolating the bit error rate values to create a decay graph representative of bit error rate changes for the disc media over a predetermined time period.

The references cited by the Examiner fail to teach or suggest each claimed limitation. The Examiner does not provide evidence that the suggestion or motivation to modify or combine the references cited is explicit or implicit in the references cited. Further, the Examiner does not provide any evidence that knowledge of one skilled in the art would provide the suggestion or motivation to modify or combine these references. Finally, the Examiner does not provide evidence of a reasonable expectation of success of such a modification or combination. Therefore claims 4-9 and 18-22 should be allowed.

Claim Rejections - 35 USC § 103 Claims 26 and 27

Claims 26 and 27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Dovek et al. The Applicant respectfully submits the following arguments pointing out significant differences between claims 26 and 27 submitted by the Applicant and Dovek.

Claim 26, upon which claim 27 depends, recites in part “means for determining whether the recordable media will be inoperable to store data at a predetermined time by measuring bit error rates for the media at specified interval points during the predetermined time period and estimating therefrom a bit error rate for the media at the predetermined time.”

Dovek does not teach or suggest determining whether the recordable media will be inoperable to store data at a predetermined time by measuring bit error rates for the media at specified interval points during the predetermined time period and estimating therefrom a bit error rate for the media at the predetermined time. Rather, Dovek teaches iteratively reading data from the storage medium and adjusting a gain of a phase lock loop until the lowest error rate is detected.

Therefore, the reference cited by the Examiner fails to teach or suggest each claimed limitation. The Examiner does not provide evidence that the suggestion or motivation to modify Dovek is explicit or implicit in the reference. Further, the Examiner does not provide any evidence that knowledge of one skilled in the art would provide the suggestion or motivation to modify Dovek. Finally, the Examiner does not provide evidence of a reasonable expectation of success of such a modification. Therefore, claims 26 and 27 should be allowed.

Claim Rejections - 35 USC § 103 Claim 28

Claim 28 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Dovek et al. (USPN 5,625,506) as applied to claim 26, and further in view of Takeuchi. The Applicant respectfully submits the following arguments pointing out significant differences between claim 28 submitted by the Applicant and Dovek and Takeuchi.

As discussed above, claim 26, upon which claim 28 depends, is distinguishable from Dovek since Dovek does not teach or suggest determining whether the recordable media will be inoperable to store data at a predetermined time by measuring bit error rates for the media at specified interval points during the predetermined time period and estimating therefrom a bit error rate for the media at the predetermined time. Rather, Dovek teaches iteratively reading data from the storage medium and adjusting a gain of a phase lock loop until the lowest error rate is detected.

Takeuchi does not teach or suggest determining whether the recordable media will be inoperable to store data at a predetermined time by measuring bit error rates for the media at specified interval points during the predetermined time period and estimating therefrom a bit error rate for the media at the predetermined time. Rather, Takeuchi teaches shifting the window for reading data from an initial position to a maximum position, increasing the window width as the window is shifted, repeatedly reading check data while the window is being shifted and an error rate is determined for various window positions, and selecting a window position based on the error rate data.

Therefore, the references cited by the Examiner fail to teach or suggest each claimed limitation. The Examiner does not provide evidence that the suggestion or motivation to modify or combine the references cited is explicit or implicit in the references cited. Further, the Examiner does not provide any evidence that knowledge of one skilled in the art would provide the suggestion or motivation to modify or combine these references. Finally, the Examiner does not provide evidence of a reasonable expectation of success of such a modification or combination. Therefore claim 28 should be allowed.

Claim Rejections - 35 USC § 103 Claim 29

Claim 29 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Dovek et al. and Takeuchi as applied to claim 28, and further in view of Korenari et al. The Applicant respectfully submits the following arguments pointing out significant differences between claim 29 submitted by the Applicant and Dovek, Takeuchi, and Korenari.

As discussed above, claim 26, upon which claim 29 depends, is distinguishable from Dovek and Takeuchi since neither reference, alone or in combination, teaches nor suggests determining whether the recordable media will be inoperable to store data at a predetermined time by measuring bit error rates for the media at specified interval points during the predetermined time period and estimating therefrom a bit error rate for the media at the predetermined time.

Korenari also does not teach or suggest determining whether the recordable media will be inoperable to store data at a predetermined time by measuring bit error rates for the media at specified interval points during the predetermined time period and estimating therefrom a bit

error rate for the media at the predetermined time. Rather, Korenari teaches determining an order value and a half peak width based on the waveform obtained when reading a recorded bit of data and using the order value and half peak width to determine whether the MR head resolution is sufficient for an expected minimum bit interval.

The references cited by the Examiner fail to teach or suggest each claimed limitation. The Examiner does not provide evidence that the suggestion or motivation to modify or combine the references cited is explicit or implicit in the references cited. Further, the Examiner does not provide any evidence that knowledge of one skilled in the art would provide the suggestion or motivation to modify or combine these references. Finally, the Examiner does not provide evidence of a reasonable expectation of success of such a modification or combination. Therefore claim 29 should be allowed.

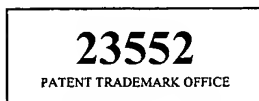
Conclusion

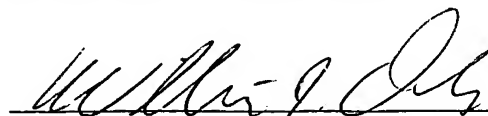
As explained above, the Examiner has not made a *prima facie* case of obviousness and the rejections are therefore improper. The Applicant respectfully requests that the rejections be withdrawn and the claims allowed. Should the Examiner believe that a telephone conference would help expedite this prosecution, the Examiner is invited to telephone the undersigned at the telephone number below.

Respectfully submitted,

MERCHANT & GOULD P.C.

Date: 12-18-03




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